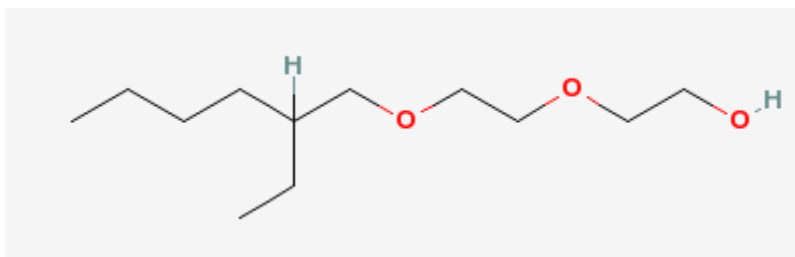


Diethylene Glycol 2-Ethylhexyl Ether

(CAS# 1559-36-0)

(Synonyms: 2-Ethylhexyl Carbitol; 2-{2-[(2-ethylhexyl)oxy]ethoxy}ethanol; Ethanol, 2-((2-ethylhexyl)oxy)ethoxy)-; 154427-52-8 (CAS Registry Former CAS Number) 195454-57-0 (CAS Registry Former CAS Number) ; DEGHE).



1 Physical and Chemical Properties

<i>Physical form</i>	clear liquid
<i>Molecular Formula</i>	C ₁₂ H ₂₆ O ₃
<i>Structural Formula</i>	CH ₃ (CH ₂) ₃ CH(CH ₂ CH ₃)CH ₂ O(CH ₂ CH ₂ O) ₂ H
<i>Molecular weight</i>	218.34 g/mol
<i>Specific gravity</i>	0.921-0.931 (20°/20°C)
<i>Boiling point</i>	277°C
<i>Melting point</i>	-82°C
<i>Vapor density</i>	7.5 °C
<i>Flash point</i>	151 °C
<i>Solubility</i>	0.2 g/100 g water

2 Production, Use, and Exposure

Diethylene glycol 2-ethylhexyl ether (DEGHE) is an industrial solvent used in the coating industry.

3 Pharmacokinetics and Metabolism

No data

4 Acute Toxicity

Lethal doses (LD₅₀s) for diethylene glycol 2-ethylhexyl ether were determined in rats and rabbits. The oral LD₅₀ in rats is 5.53 ml/kg (Kyowa Hakko Chemical Co. Ltd., 2008). The LD₅₀ by intubation in rats is 7.5 ml/kg (Union Carbide Chemicals and Plastics Company Inc. 1992). In addition, the LD₅₀ for percutaneous administration in rabbits is 2.5 ml/kg (Union Carbide Chemicals and Plastics Company Inc. 1992).

Ballantyne and Myers (1987) report LD₅₀ values in Hilltop Wistar rats and New Zealand white rabbits for DEGHE. Hilltop Wistar rats were exposed by acute oral administration and by inhalation to diethylene glycol 2-ethylhexyl ether. New Zealand white rabbits were used for the acute percutaneous, primary skin and eye irritation studies (Ballantyne and Myers 1987).

Undiluted DEGHE was given orally to rats (5 male and 5 female) and the animals were inspected twice daily for toxicity or pharmacological effects during a 14-day post-dosing period. The LD₅₀ for acute oral exposure (administration by gavage) in the rat is 4.92 ml/kg (males) and 3.73 ml/kg (females).

Undiluted DEGHE was applied to the trunk skin of rabbits (5 male and 5 female) and remained in contact with the skin for 24 hours using a dressing. Animals were examined twice daily over the 14-day post-dosing period for signs of local inflammation and systemic toxicity. The acute percutaneous exposure LD₅₀ in the rabbit is 2.14 ml/kg (males) and 2.37 ml/kg (females) (Ballantyne and Myers, 1987). A 4-hour application of 0.5 ml DEGHE to 6 rabbits caused mild cutaneous inflammatory effects with mild erythema (of less than 2 day duration) and detectable edema (Ballantyne and Myers 1987).

Five male and five female rats were exposed via inhalation to saturated DEGHE vapor for 6 hours and no signs of toxicity or irritancy were observed over the 14-day post-dosing observation period (Ballantyne and Myers 1987). No gross pathological changes were seen after necropsy (Ballantyne and Myers 1987).

Within one hour of instilling 0.1 ml into the conjunctival sac of the eyes of rabbits, all animals developed a moderate to marked conjunctivitis, as hyperemia, chemosis, and discharge. Mild iritis persisted from 24 hours to 7 days. Moderate corneal injury was observed by 24 hours post-exposure. Following the application of 0.005 ml DGEHE to the surface of the cornea, conjunctivitis with hyperemia, chemosis and discharge was similar to that observed at 0.5 ml including mild iritis and moderate corneal injury. Union Carbide (1992) also reported severe eye injury to rabbits as well as skin irritation, but it is unclear if these were results of a separate study (Union Carbide Chemicals and Plastics Company Inc. 1992).

5 Other Toxicity

No data on other forms of toxicity or the effects of long term exposures were located.

6 References

Ballantyne B and Myers RC (1987). The comparative acute toxicity and primary irritancy of the monohexyl ethers of ethylene and diethylene glycol. Vet Hum Toxicol 29(5): 361-6.

Diamond Vogel Ltd. (2004). Material Data Safety Sheet (MSDS) for Acrylic Epoxy Gloss Cure containing 1-5% by weight of DGEHE CAS # 1559-36-0. Last revised 11/16/04.

http://www.diamondvogel.com/prod_msdms/MF-0220-MC-1221PtBGloss.pdf Last accessed 11/13/08.

Kyowa Hakko Chemical Co, Ltd. 2008

Draft Interim REL March 2010

Union Carbide Chemicals and Plastics Company Inc. 1992